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Anxiety Disorders: The Relationship between Insight and Metacognition

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Abstract
Background: The exploration of metacognition in relation to anxiety has received considerable attention in recent decades. Research indicates that it plays a role in the development and maintenance of anxiety disorders while also providing benefits, including the ability to assess situations, modify behaviors, and make informed decisions. ***Summary:*** We propose that having an awareness of a disorder, also known as insight, is related to metacognition in anxiety. This relationship stems from the ability it provides individuals to recognize their mental state through reflection on personal experiences. We discuss the impact of insight and metacognition on decision-making, treatment-seeking behaviors, and coping strategy selection. ***Key Messages:*** Understanding the concept of insight in anxiety disorders, as compared to other mental disorders like psychosis, requires exploring its complexities while carefully considering the balance of harms and benefits. While the medicalization of symptoms in psychosis is widely regarded as clearly beneficial, evaluating the role of insight in anxiety disorders demands a more nuanced understanding. Gaining a fuller perspective on patients' beliefs can impact their behaviors and decision-making. Clinicians can achieve this by encouraging active self-reflection to increase awareness, which includes evaluating both severity and impact on daily functioning. This also involves expressing experiences and exploring attributions of anxiety. This practical approach enables clinicians to understand engagement and treatment-seeking behaviors, allowing them to tailor treatment plans and develop effective coping and management strategies. Ultimately, this knowledge promotes a deeper comprehension of insight into anxiety disorders.

Introduction

This paper explores the connection between insight (i.e., disorder awareness) and metacognition in anxiety in the context of existing studies on insight in anxiety, especially those by [1–7]. In contrast to the more clearly defined phenomena observed in psychosis such as abnormal experiences and dysfunctional behaviors, where the connection between metacognition and insight is

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more evident [8, 9], understanding insight into anxiety has unique challenges [10]. By comparing insight in psychosis to that in anxiety, we aim to highlight the distinctive characteristics of the latter. We also highlight the cognitive aspects related to awareness, including perceiving and reflecting on experiences, as well as attributions of anxiety. The discussion addresses the advantages and challenges of metacognition, essential for refining treatment approaches for individuals facing anxiety-related challenges.

Is Anxiety a Mental Disorder?

Despite the utility of the DSM-5-TR and ICD-11 nomenclature for contemporary psychiatry and psychology, their definitions sometimes restrict the scope of understanding psychopathology. With this framework, they provide definitions that emphasize disturbances in cognition, emotion regulation, or behavior, which serve as indicators of dysfunction in underlying psychological, biological, or developmental processes of mental functioning. These classifications aim to offer a comprehensive framework while acknowledging individual variations and unique circumstances [11, 12]. Nonetheless, there are compelling reasons to explore anxiety's psychopathology beyond the confines dictated by DSM/ICD. Recent historical archival research has revealed that many DSM constructs were established primarily on clinical consensus, indicating agreement (reliability) but not necessarily reflecting reality (validity) [13]. Specifically, the concept of generalized anxiety disorder (GAD) within the DSM was introduced during the 1980 American Psychiatric Association general assembly vote to ratify DSM-III, replacing the older notion of neurotic depression [13]. Notably, at that time, it lacked scientific validity, and subsequent validity studies have challenged its status as a scientifically legitimate independent entity [14]. Furthermore, the emphasis within DSM/ICD on "dysfunction" diverges from standard scientific approaches to medical diseases, where functional impairment may or may not be present [14]. To illustrate, conditions like cancer can be diagnosed in early and intermediate stages without any functional impairment and frequently without noticeable symptoms. Similarly, hypertension is defined as having no symptoms, let alone functional impairment. Hence, it is worth contemplating a scenario within psychiatry where "mild anxiety" may not inherently indicate pathology or an underlying condition but instead represents a distinct phenomenon in itself.

Evolutionary psychology offers a useful framework for understanding mental disorders [15–19]. According to these theories, biological features that may have evolved in a particular context can become maladaptive when faced with changing social environments, impacting functioning and well-being. Wakefield [17–19] defined mental disorder as a situation where harm or deprivation of benefit occurs to a person according to cultural standards. He proposed that a condition is considered a mental disorder if the underlying mechanism fails to fulfill its natural role and the harm it causes is culturally dependent. Kirmayer and Young [16] defined mental disorder as dysfunction in social and cultural components, resulting in changes in perception, behavior, and relationships (e.g., impairments in learning, interpersonal interactions, and loss of voluntary control).

The evolutionary perspective on specific phobias recognizes the role of both innate factors and learned experiences. Certain stimuli elicit strong fear responses, leading individuals to develop phobias. Many specific phobias arise from "prepared learning," where individuals biologically associate certain stimuli with fear and avoidance. The response to different dangers reflects the influence of natural selection, with specific phobias being shaped by both innate predispositions and learned associations [20]. Bulley et al. [15] explained that social anxiety has evolved for coping with potential threats to social status, whereas individuals with social anxiety disorder (SAD) avoid social activities due to excessive fear of judgment and rejection in social situations. This avoidance is maladaptive as it can lead to excessive fear of rejection, engagement in safety behaviors, substance misuse, and avoidance of triggering events. Panic disorder can be explained as a response to false alarms in the system that triggers panic responses. Understanding panic attacks as a normal response to extreme danger helps individuals with panic disorder relate to their experiences [20]. Moreover, Nesse [20] suggests that GAD is characterized by excessive worry and a prevention-focused mindset aimed at avoiding harm or loss. The author argues that the distribution of motivational states, such as promotion and prevention, has not undergone sufficient narrowing through natural selection. This leaves individuals with GAD more prone to extreme prevention behaviors [20].

Overall, these theories stress that understanding anxiety is crucial for social interactions and belonging. Anxiety disorders impair social functioning, hindering relationships and leading to avoidance and self-criticism. Recognizing anxiety at a metacognitive level (e.g., "the belief that I will humiliate myself might be wrong") and

acknowledging having a disorder (e.g., "my thoughts that I will humiliate myself are part of my SAD") are crucial for behaviors such as seeking treatment or using coping strategies.

Insight into Psychosis and Nonpsychotic Disorders

Insight into Psychosis

Jaspers [21] introduced the concept of insight in psychopathology, defining it as the capacity to accurately perceive its intensity and assess the severity of a disorder. Lewis [22] emphasized the importance of insight as a psychiatric concern, describing a high level of insight as having the "correct attitude" toward changes in one's condition and the ability to make accurate judgments about it. In psychosis, insight refers to various dimensions of awareness related to the disorder, and it has been proposed as a multidimensional, continuous concept [23]. The definition includes awareness of having a mental illness, the capacity to identify atypical experiences, and acknowledgment of the need for treatment. Amador et al. [24] expanded the definition of insight, describing it as "the processes of awareness and attribution" and further explained that "awareness is the recognition of signs or symptoms of illness, while attribution refers to explanations about the cause or source of these signs or symptoms" (p. 874). Amador and David [25] elaborated on this definition using five dimensions including recognition of mental illness, realization of its consequences, acknowledgment of the symptoms, attribution of symptoms to a disorder, and recognition of the effects of medications. Insight in psychosis has been shown to be linked to psychopathology, mood, self-esteem, IQ, quality of life, and treatment adherence and outcomes. For instance, lower mood correlates with better insight, while lower insight is associated with worsened psychopathology, diminished IQ, and lower quality of life. Additionally, greater insight is suggested to contribute to an improved prognosis, going beyond the influence of adherence [8].

Insight into Nonpsychotic Disorders

In recent years, researchers have investigated insight in the context of nonpsychotic disorders such as obsessive-compulsive disorder (OCD) [26], body dysmorphic disorder (BDD) [27], eating disorders (EDs) [28, 29], affective and anxiety disorders [2, 3, 6, 7]. Different terms, such as "poor insight," "overvalued ideation," "fixity of beliefs," "denial of illness," "unawareness," and "delusional beliefs/thinking" [11, 30, 31], are used to describe insight in commonly studied disorders such as OCD, BDD, and EDs.

In EDs, impaired insight has been described as denial of having a mental illness, unawareness of inaccurate beliefs about one's body shape and weight [29, 32], delusionality of beliefs, and overvalued ideas [33–35]. Higher levels of body image delusionality have been associated with poorer illness awareness [34], while lack of insight has been found to be a characteristic of anorexia nervosa [29]. In OCD, poor insight is characterized as the rigidity of holding a specific belief, often described as fixity of beliefs [36], overvalued ideation [30, 37, 38], or lack of awareness regarding the irrationality of the obsessions and compulsions, as defined by the DSM [11, 38].

In anxiety, using definitions similar to those used in psychosis [23, 24], Halaj and colleagues [3] found that insight (i.e., greater awareness of illness and need for treatment) was correlated with higher reporting of symptoms and more dysfunctional metacognitive beliefs [3, 39]. In SAD, insight has been described as acknowledging that one's fear is unreasonable or beliefs are unjustified [6, 7]. Ghaemi et al. [2] measured awareness of illness using the Scale to Assess Unawareness of Mental Symptoms and Disorder in affective and anxiety disorders. In specific phobias, insight has been defined as excessive attribution of danger [26], and according to the DSM-IV and DSM-5-TR criteria [11, 39] as recognition of excessive or unreasonable fear and overvalued ideation [5]. As there is no consistent definition of insight in nonpsychotic disorders, this paper adopts the definition of insight as the awareness of the presence of symptoms and mental disorder, leading to a willingness to seek or recognition of the need for treatment [23, 25].

Differences between Insight into Psychosis and Anxiety

The perception of anxiety as a less severe condition compared to psychosis and bipolar disorder, coupled with cultural and social influences, contributes to the notion that anxiety lacks a firm biomedical basis, posing a challenge to defining insight in this context. Consequently, individuals with anxiety may deny the existence of their problem or disorder, which hampers their willingness to seek treatment. Moreover, some researchers propose that psychopathology exists on a single dimension, beginning with mental health, but going through anxiety, mood, to psychotic symptoms [40]. Symptoms in anxiety and mood disorders are often perceived as mild and understandable, while those in psychosis, such as auditory hallucinations or delusional

beliefs, are typically regarded as more severe and often un-understandable. Clinicians may view psychotic experiences as deviating from typical thought processes and perceptions commonly observed in everyday reality. It is important to note that even these experiences can be found in otherwise healthy individuals [41]. The familiarity and lesser extremity of anxiety symptoms (especially bodily sensations) often lead to their automatic categorization as "normal experiences," making it less natural to perceive anxiety as a disorder.

Anxiety is a universal aspect of mental life that manifests in varying degrees, serving as a natural response to fear and danger, crucial for survival. However, individuals may struggle to determine if their anxiety level is more excessive than the average person. Anxiety, in itself, represents a fundamental aspect of the (normal) personality trait of neuroticism, which has been extensively validated through experimental psychology research, originally pioneered by Eysenck and his colleagues [42]. Neuroticism involves consistently experiencing intense negative emotions, like anxiety and sadness, especially during anxious or depressive moods. This includes seeing the world as threatening and believing one lacks the capacity to handle challenges effectively. Those with neurotic tendencies often concentrate on criticism, reinforcing feelings of inadequacy and a perception of reduced control [43]. Those high in neuroticism often endure persistent and intense emotional reactions to stressors, perceiving situations as threatening [44, 45], thereby increasing their likelihood of experiencing anxiety symptoms and disorders [46]. Consequently, individuals with anxiety may compare their experiences to others, reflect on their initial encounters with anxiety, and evaluate its impact on their daily lives and social situations. Unlike psychosis, where severe symptoms often lead to reduced awareness of mental disorders [8], the severity of anxiety symptoms tends to correspond with increased suffering, impacting daily functioning, and greater acknowledgment of the issue, without necessarily challenging reality testing [3].

The impact of anxiety on individuals ultimately depends on their perception and definition of distress or impaired functioning, key criteria for all mental disorders as outlined in the DSM-5-TR [11] and ICD-11 [12]. Some individuals may fail to recognize their excessive anxiety due to lifelong experiences or rationalize it as a normal aspect of being human, while others may have developed coping mechanisms [47]. Nonetheless, the continued effort to maintain normal functioning may indirectly prompt seeking help. Gaining an understanding of the subjective nature of distress and its impact involves understanding whether avoidance of certain places or situations persists without anxiety or if engagement in social activities is influenced by the perceived harmlessness of physical symptoms (e.g., heart racing). While awareness of the abnormality of physical symptoms is a step forward, it is crucial to identify anxiety itself as the underlying cause rather than attributing it to a physical illness (i.e., recognizing the illness as "mental" in Lewis' [22] terms) to gain insight into having a mental disorder.

Insight and Attribution in Anxiety

Attributions, including biological and psychosocial factors such as genetic influences, brain imbalances, stressors, relationships, trauma, and environmental and psychological elements, shape individuals' understanding of mental disorder [48–53]. Recognizing these attributions is crucial as they impact self-stigma and treatment choices [51, 53]. For instance, attributions of depression's cause affect help-seeking behavior and treatment preferences [54–56]. A biopsychosocial understanding of depression can enhance mental health outcomes and discourage overreliance on lifestyle-based remedies, due to the belief that only psychosocial adaptations can remedy the condition [55, 56]. Treatment preferences are also influenced by attributions, with biological attributions favoring medication [53, 57].

However, biological attributions may discourage therapy seeking and foster a belief that a cure for mental ill-health is beyond one's control, hindering the pursuit of emotional well-being [54, 58, 59]. Although depression and anxiety may differ in causes and treatments, attributions can similarly impact mental health outcomes and treatment decisions for both disorders.

Building upon this, we highlight the different factors influencing beliefs about the cause of anxiety disorder including external (cultural, social norms), personal values (childhood experiences, personality), and internal factors (psychiatric, metacognitive, biological causes). Attributions of causes of anxiety can be influenced by past experiences, context, and understanding others' mental processes. Recognizing excessive feelings and thoughts may indicate high level of awareness. Attributing anxiety internally indicates deeper understanding of one's mental state, while attributing it externally may create a sense of having found the root cause (e.g., "I have learned to be anxious from my anxious parents"). Moreover, attributing anxiety to a mental disorder increases treatment seeking, but not everyone seeks help. Reasons for not seeking treatment include cultural stigma, religious beliefs, and past experiences. Lack of awareness about treatment benefits and a desire to maintain normality also

discourage seeking help. Age of onset and symptom duration influence perception and cause attribution. Early onset and longer duration may reinforce the view that anxiety is biologically rooted or part of one's personality, while later onset suggests other causes. Further research on age of onset, symptom duration, and insight is needed to understand their impact on awareness of a disorder.

Metacognition and Insight into Anxiety

Metacognition and Anxiety

Metacognition is recognized as the process of thinking about thinking. In this paper, we use the comprehensive notion of "metacognition" that covers a range of cognitive processes and abilities that includes reflecting on one's own thinking, awareness, monitoring, and regulating of cognitive processes [60–64]. Metacognition is essential for understanding emotions, analyzing situations, making decisions, recognizing problems, and adapting to challenges [62, 65, 66]. This concept includes not only the recognition and reflection on one's beliefs, thoughts, and feelings but also the monitoring of cognitive processes and the detection of potential errors or biases. It is linked to anxiety disorders, with negative metacognitive beliefs particularly regarding danger or uncontrollability (e.g., "If I start to worry in a social situation, I won't be able to stop and I'll embarrass myself") and difficulty controlling thoughts contributing to increased anxiety [64, 67]. Negative metacognitive beliefs (i.e., uncontrollability and danger of worry) have been found to predict anxiety symptoms [68]. Other research suggests that anxiety symptoms are associated with negative self-beliefs (i.e., low self-esteem and self-efficacy) and low metacognitive confidence (during task performance) [61, 69, 70].

Metacognition also involves integration of self-awareness and monitoring into representations of both the self and others. Much work and discussion around metacognition and anxiety (and depression) falls under the heading of emotional regulation [71]. Here, participants are studied in terms of their beliefs about emotions, particularly how controllable they are and what methods they or others should use to regulate their experience and expression. Such methods include suppression, avoidance of the situation, cognitive reappraisal, etc., with the last of these generally being most adaptive. The advantage of the emotion regulation construct with respect to metacognition and anxiety is that it provides a normative framework and need not lead to distancing, pathologizing, and over-medicalizing.

Metacognition and Insight

Awareness of mental disorder is influenced by various aspects of metacognition, including self-reflection, perception of oneself and others, and metacognitive accuracy in monitoring and judging cognitive processes [72]. Metacognitive beliefs have significant impact on the persistence of anxiety, impeding self-reflection on anxious thoughts and behaviors, leading to dysfunctional self-evaluation and a lack of understanding [73]. Negative self-beliefs, such as low self-esteem and self-efficacy, along with a lack of self-confidence, contribute to difficulties in recognizing uncertainty and managing anxiety symptoms [74–77]. This can manifest as negative or catastrophizing thoughts, avoidance, and engagement in safety behaviors [78, 79]. Individuals with psychosis often have deficits in metacognitive capacities, resulting in reduced insight into their symptoms and illness [80]. People with anxiety disorders typically have intact metacognitive abilities, enabling them to recognize their anxious thoughts and their maladaptive coping behaviors. However, deficits in metacognition, though less severe and generalized compared to psychosis, may exist in anxiety disorders. While most individuals with anxiety disorders can identify their anxious thoughts, many rely on maladaptive coping mechanisms like avoidance. Additionally, some individuals may struggle to recognize the excessive and disproportionate nature of their anxious thoughts. These distinctions highlight the challenges faced by individuals with anxiety disorders and the complex and interdependent relationship between insight and metacognition which we illustrate below (shown in Fig. 1). The four components are (1) anxiety symptoms (2) self-reflection, (3) decision-making, and (4) behaviors. According to Figure 1, individuals evaluate their anxiety objectively and reflect on their experiences, leading to varying responses and decisions based on their perception.

The first component is anxiety symptoms, which include physical sensations, like increased heart rate and sweating, and cognitive symptoms, such as excessive worry and negative beliefs. These symptoms can impair functioning and negatively impact an individual's well-being. The second component is self-reflection, or introspection. The ability for introspection and understanding of thoughts and feelings can vary among individuals. As a result, many patients may encounter challenges in gaining insight into their anxious thoughts, including instances where they believe their risk perception is accurate. It is important for individuals to be conscious of their physical symptoms in order to evaluate and reflect on them and question whether they are experiencing anxiety or a normal bodily response. For

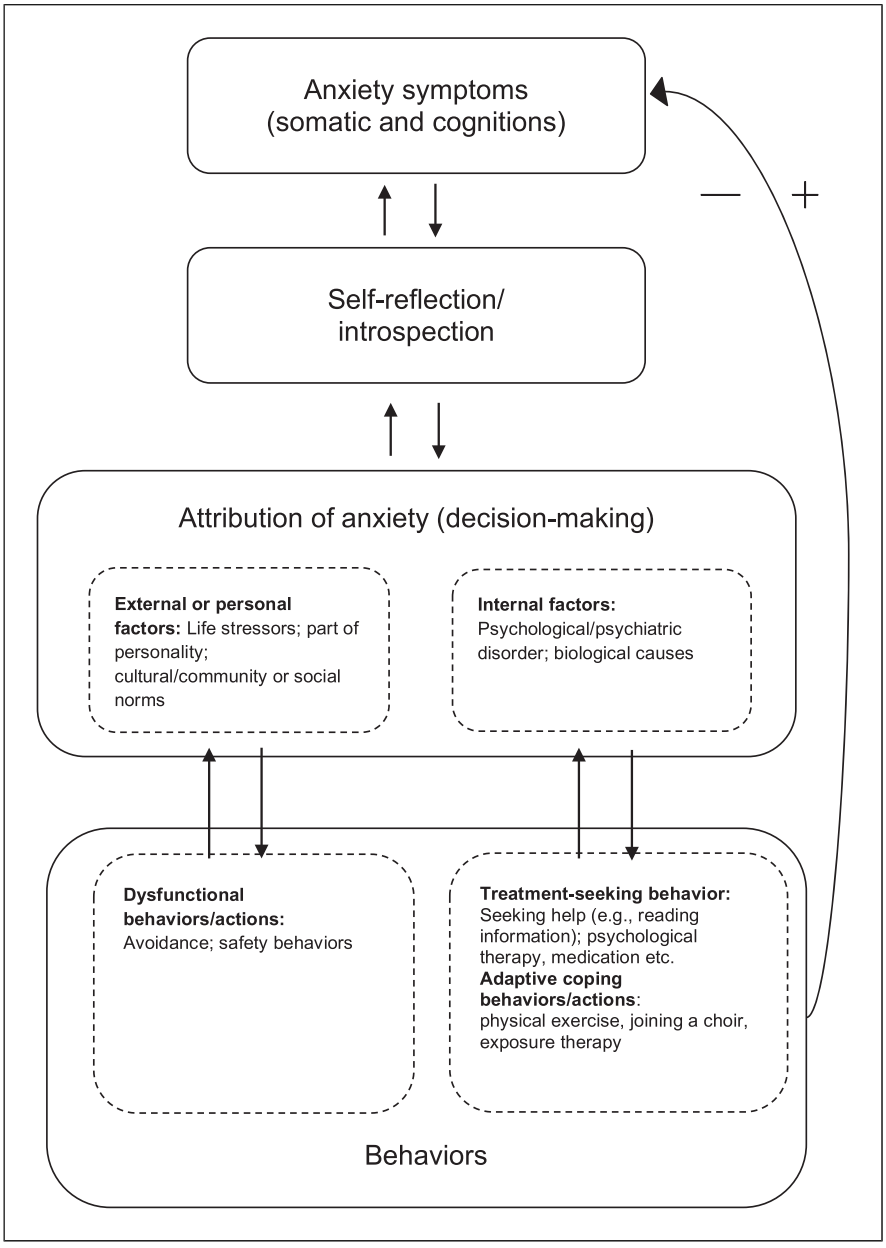

Fig. 1. The relationship between insight, anxiety disorders, and metacognition. This metacognitive process consists of four components: (1) anxiety symptoms, (2) self-reflection/introspection, (3) attribution of anxiety (decision-making), and (4) behavior selection. The presence of anxiety symptoms (physical and cognitive) triggers introspection and leads to decision-making regarding the cause of the anxiety (internal or external). This results in behavior selection, including treatment-seeking or nontreatment-seeking options. The selection of these behaviors creates a feedback loop influencing the intensity of anxiety symptoms, rather increasing or decreasing them. Subsequently, individuals may engage in self-reflection/introspection, leading to a choice between adopting treatment seeking and adaptive behaviors or dysfunctional behaviors. By objectively evaluating their anxiety experience through this process, individuals can make informed decisions to manage their anxiety and improve their overall functioning and well-being.

instance, individuals in this stage may ask themselves questions like, "Is this anxiety? What's causing me to feel this way? Why am I having these fears in social situations?" They may also gather information from their environment to better understand their anxiety and determine whether it is harmful or beneficial. Interoception and embodied metacognition, which are reflection on these bodily signals, may indeed have a significant impact. These processes can contribute to the misinterpretation of usual bodily reactions as dangerous, such as after panic attacks [81]. Additionally, in the case of GAD, difficulties in connecting specific physical symptoms with feelings of anxiety can impede the development of insight into the psychological nature of anxiety-related physical symptoms.

The third component is attribution of the anxiety disorder, where the individual makes a decision about the source of their anxiety. This includes considering both external and internal factors, such as cultural/social beliefs, life stressors, childhood experiences, chemical imbalances, and inherited conditions. The level of insight the individual has influences their attribution. We may

contend that individuals who have a high level of insight attribute their anxiety to psychological or psychiatric causes, while those with a low level of insight attribute it to external factors. These attributions affect the individual's decision-making and behavior (in next component) toward seeking or avoiding treatment.

In the final component, individuals' behaviors are considered. An individual who perceives their anxiety as having an internal cause, such as a psychological or biological factor, is more likely to seek help or treatment or to consider self-regulation strategies. Conversely, if the individual attributes their anxiety to external factors, they may delay seeking assistance and persist in avoiding anxiety-provoking situations or continue managing their anxiety with safety behaviors.

The process is ongoing for the individual with anxiety. Seeking or not seeking treatment does not guarantee the end of the process. If their symptoms persist, they may have to revisit earlier stages. Successful treatment can allow for reflection, but unsuccessful treatment requires returning to the beginning. Nontreatment-seeking behaviors may provide temporary relief, but they are not a solution to persistent symptoms, which will prompt a return to the first stage to understand symptoms better.

Empirical evidence indicates that self-reflection can enhance insight. In a study [82], patients were randomly assigned to watch videos of themselves during delusional episodes (mania or schizophrenia), characterized by low insight, or a control video (a music concert). The viewing occurred a few weeks post-hospitalization for psychosis. Interviews conducted a few days after video viewing revealed that those who watched videos during a psychotic state showed improved insight compared to the control group.

In most cases, individuals who gain insight into their anxiety tend to seek treatment and improve their well-being. However, good metacognitive accuracy entails not only recognizing when individuals need help or have a problem but also knowing when they no longer require help or have a problem of some kind. Failing to accurately assess their own abilities can lead to negative consequences, such as persistently seeking external help for a condition that others no longer recognize. We believe that it is crucial to increase awareness of the impact of anxiety on one's life and experiences, especially when individuals with anxiety choose to ignore it to avoid serious consequences, but they must correctly calibrate their response to the situation.

Costs and Benefits of Metacognition in Anxiety

Metacognition is beneficial for individuals with anxiety, helping them evaluate stressful situations, understand emotions, and take appropriate action, such as seeking treatment or engaging in effective coping strategies. Good metacognition in social anxiety, for example, can lead to intentional social interactions by evaluating and challenging negative thoughts. In treatment, good metacognition may result in better decision-making and improved outcomes due to increased awareness and understanding of anxiety's impact. While highlighting the benefits of metacognition, it is essential to consider its broader implications in therapeutic contexts. The idea of increasing self-reflection to gain insight into anxiety, is similar to the approach used in cognitive therapies for anxiety that aim to increase awareness of the impact of anxiety on one's life and experiences [83, 84]. However, it is important to investigate whether the concept proposed in this paper is aligned with the perspective of these therapies.

The perspectives gained through metacognitive processes, such as understanding emotions and challenging negative thoughts, correspond with Frank's common factors model [85, 86]. Frank suggests that anxiety is caused by demoralization, and the therapist's narrative, a common factor in therapies, plays an important role in remoralizing the patient. This narrative is plausible to the patient and associated with a ritual for improvement. The common factors model supports the idea that insight into symptoms is essential for a better outcome, confirming the claim that constructing a coherent narrative using metacognition is beneficial in the therapeutic process.

However, there are potential costs associated with metacognition that should be considered. Excessive self-reflection can worsen anxiety symptoms and interfere with daily functioning. Additionally, anxious individuals who have heightened metacognitive abilities might be more inclined to overanalyzing their thoughts and emotions, leading to excessive worry and self-uncertainty. A balanced approach to metacognition is necessary, harnessing its benefits while managing potential challenges to maintain overall well-being.

Conclusion

The distinctive nature of insight in anxiety requires a focused examination, highlighting the significance of self-reflection and metacognition. We suggest that increasing awareness of anxiety can be achieved through self-reflection, influencing behaviors and decision-making. Our suggestions offer a practical approach for individuals dealing with anxiety, promoting a deeper understanding for more effective coping and management strategies.

While highlighting the benefits of metacognition, we also acknowledge the disadvantages, emphasizing the need for a balanced approach. Overall, our findings contribute to the understanding of mental disorders, aiding the refinement of treatment and advancing the concept of insight into anxiety.

Conflict of Interest Statement

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Author Contributions

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